DOCUMENT RESUME

ED 480 571 JC 030 447

TITLE	Report of the Maricopa Community College District Governing Board's Goal on Post-Secondary Student Competencies.
INSTITUTION	Maricopa County Community Coll. District, Phoenix, AZ.
PUB DATE	2001-02-00
NOTE	40p.; Prepared by The MCCD Institutional Effectiveness Office and The District Student Academic Achievement Assessment Committee.
PUB TYPE	Reports - Descriptive (141)
EDRS PRICE	EDRS Price MF01 Plus Postage. PC Not Available from EDRS
DESCRIPTORS	*College Students; Community Colleges; Curriculum; *Educational Assessment; Evaluation; Formative Evaluation; *Minimum Competencies; Performance Based Assessment; Program Evaluation; *Student Evaluation; Two Year Colleges
IDENTIFIERS	*Maricopa County Community College District AZ

ABSTRACT

This document offers reports on the Maricopa Community College District (Arizona) Governing Board's Goal on Post-Secondary Student Competencies. The report includes detailed information for ten MCCD schools. For example, the 1999-2000 academic year assessment for Chandler-Gilbert Community College (CGCC), analyzed the writing and mathematics programs at CGCC. These assessment efforts focused on classroom level and course level measures of general education skills, as well as cross-disciplinary measures of critical thinking and personal development. CGCC faculty, in collaboration with the Student Learning Outcomes Assessment Committee (SLOAC), created college-wide definitions for the competency outcomes listed by the Governing Board, collected documentation, and used the results of assessments to make changes in pedagogy, curriculum, course scheduling, advisement, and faculty development. Future recommendations for CGCC assessment efforts include: (1) Extending the writing competency rubric for use beyond English classes; (2) Increasing budget for continued assessment efforts; (3) Increasing cross-disciplinary assessment training, including group speakers; (4) Extending the math common final assessment to courses beyond College Algebra; and (5) Continuing to hold the annual faculty forum on assessment each year. The document offers, for each school included, an executive summary of the assessment efforts, highlights of the efforts, and future recommendations. (NB)

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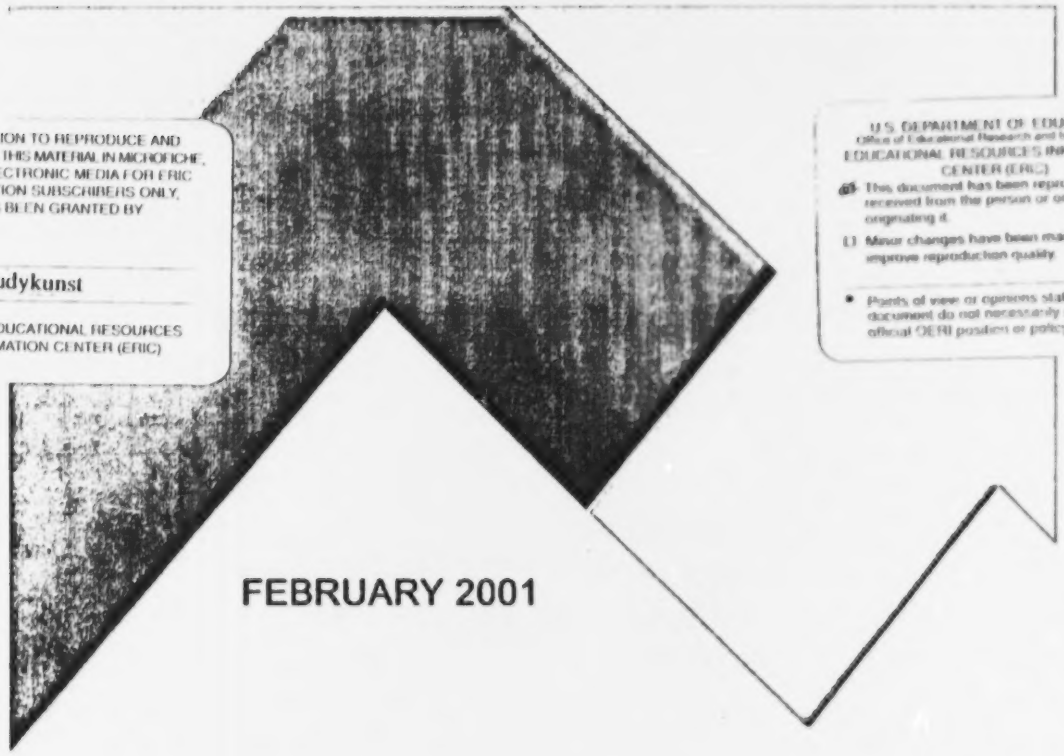
REPORT
of the
MARICOPA COMMUNITY COLLEGE
DISTRICT GOVERNING BOARD'S GOAL
on POST-SECONDARY STUDENT COMPETENCIES



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FEBRUARY 2001

Prepared by The MCCD Institutional Effectiveness Office and
The District Student Academic Achievement Assessment Committee

JC 030 447

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Chandler-Gilbert Community College

Executive Summary

During the 1999-2000 school year, CGCC faculty, in collaboration with the Student Learning Outcomes Assessment Committee (SLOAC), continued their assessment efforts, which focused on classroom level and course level measures of general education skills, and cross-disciplinary measures of critical thinking and personal development. They created college-wide definitions for the competency outcomes listed by the Governing Board, collected documentation at various levels of assessment, and used the results of these assessments to make changes in pedagogy, curriculum, course scheduling, advisement and faculty development. Residential and adjunct faculty as well as appropriate staff and administrators were involved at all levels of the assessment process which included division meetings, cross-curricular meetings, workshops, training sessions and twice-monthly SLOAC meetings. This process included the annual faculty forum on assessment in February, when a visual snapshot of general education competency assessment at CGCC was created by the faculty using a matrix. This matrix illustrated that all of the competencies were being evaluated or assessed at some level using a wide variety of faculty developed assessment tools. Examples of the variety of assessment tools include: faculty-developed rubrics in Math, English, History, Economics and Computer Applications; tests and quizzes; classroom research; graduation surveys; learning center and library surveys; personal development and goal setting projects; portfolios; oral presentations; laboratory work; music, art and drama presentations; holistic writing samples; note collection; collaborative activities; reflections; pre and post common assessments in math and science; journals; mind maps; translations; case studies; inventories; and observations of behavior. These tools included quantitative, qualitative, summative, normative, value added, formal and informal measures.

No one instrument assessed all of the outcomes at one time. Critical thinking, writing, problem solving and information literacy were competencies assessed across many disciplines. Five levels of assessment opportunities were recognized: classroom level, course level, division level, program level and college wide level. Divisions also created vision, mission and goals statements, which contributed to the discussions of student learning outcomes and assessment. Many of these division statements reflect the institutional goals of effective, innovative, learner-centered and flexible educational opportunities offered at CGCC. Global issues, cultural differences, diversity of opinions, learning styles, expectations of student learning and values all became an invaluable part of the discussions surrounding the creation of competency definitions, assessment tools and the interpretation of results. The definition for competency in reading was not completed during 1999-2000, but will be addressed in 2000-2001. Decision makers at all levels analyzed the information received from the assessments to determine whether changes were needed in the areas of pedagogy, curriculum, advisement, scheduling, faculty and staff development, or in the assessment tools themselves. Selected student populations were followed to observe the impact of ongoing assessment activities on student learning. Students taking ENG101-102 and MAT082-152 were defined as cohorts for assessment purposes as were spring graduates, library users and computer lab users.

Highlights of Assessment Efforts

Writing

The first-year composition program, ENG101-102, held its annual assessment review of student writing in the summer of 2000. The assessment process took place at the classroom level, the discipline level and the program level. Fifty-seven (57) student papers were randomly selected and evaluated using established faculty-developed rubrics, which included specific evaluation criteria for analysis of strengths and weaknesses in a paper, as well as summative evaluation standards. This holistic grading process included residential and adjunct faculty members collaborating in teams. Faculty identified overall strengths and weaknesses in the student sample papers and provided recommendations for instructional improvements. The results of this annual review are published and communicated to all English instructors and to the college assessment committee. The workshop results are shown in the following tables:

ENG102 N=22	ENG101 N=35
A 4 18%	A 6 17%
B 7 32%	B 11 31%
C 9 41%	C 10 29%
D 2 9%	D 8 23%

Strengths:

- strong thesis statements that identify purpose
- basic essay structure of introduction, body and conclusion
- basic paragraph development
- appropriate use of personal experience
- strong personal voice
- conclusions refocus reader
- fundamental mechanical skills
- attempts to use figurative language and metaphor
- mature topic choices
- accurate use of MLA form
- variety of source
- fluent, cohesive thought
- well-developed and engaging introductions

Weaknesses:

- weak titles
- purpose not fully developed or substantiated
- lack of deep thinking
- lack of relevant detail
- unwillingness to examine assumptions
- poor word choice
- lack of mature vocabulary
- misuse of transitions
- unrefined proofreading
- poor sentence structure
- lack of sentence style variety
- weak conclusions
- diminishing attention on focus throughout paper
- awkward synthesis of sources
- lack of depth in development
- little evidence of interviewing as a source

Observations, recommendations and future goals include (not an exhaustive list):

- Satisfaction with rubric as a tool for assessing overall standards of writing.
- Increase sample size
- Spend more class time teaching the concepts of audience and purpose
- Spend more class time on analyzing and evaluating sources
- Focus on thought development beyond summary: elaboration, explanation, exemplification, analysis and argument
- Work with the Writing Center personnel to improve writing mechanics
- Overall satisfaction with numbers of A's and B's in ENG101-102
- The determining factor between B/C grades seems to be the mechanical skills of research and documentation
- Require more papers in ENG102 to concentrate on sources and synthesizing
- Increase direct teaching and editing of transitions, focus and development

Mathematics

For many years the residential and adjunct math faculty at CGCC have met together in teams to establish the criteria, devise the questions and evaluate the results of pre and post assessments in MAT082 - MAT152 (Arithmetic Review / College Algebra). Grading standards including a common math rubric were created to enhance the consistency of assessment. Common final exams are given to every section of these

courses, and are designed to meet the MCCD course competencies as well as specific critical thinking and calculator competencies agreed upon by the faculty. Data on the common finals are collected from each instructor and include the number of students tested, percentage of students receiving A - F grades on the exam, and the percentage of students who missed each specific question. Summary sheets of the data were analyzed by teams of faculty to evaluate the assessment tool for misleading questions, to determine which skills were not mastered and to plan training sessions for faculty to improve the teaching and learning of those skills which were not sufficiently mastered. Changes were made in class schedules, from three 50-minute periods per week to two 75-minute periods in order to enhance student learning through innovative lessons designed for projects, collaboration, discovery learning, group discussions and technology. The Maricopa Mathematics Modules were piloted as alternate curriculum in several classes.

Final exam scores from college and intermediate algebra were quantitatively analyzed in order to answer two questions:

1. Will final exam scores be significantly different among students who took these classes for three, four or five credits?
2. Will scores be significantly different between students who took the class from instructors who used a textbook compared to the modules?

Since both of these courses are offered for three, four or five credits, the first question was answered by using an analysis of variance test and subsequent independent t-tests. The second question was answered using an independent t-test since all scores fell into two groups, textbook or module class. Both questions were analyzed using two tailed tests. Limitations to this study include lack of instructor response to some questions, differences in class schedules, and an unequal balance between module vs. textbook classes.

Question #1

Intermediate Algebra	MAT 120 (5 credits)	MAT 121 (4 credits)	MAT 122 (3 credits)
Average Score	81.49	78.69	67.62
Standard Deviation	12.37	13.82	12.20
Number of students	63	90	37
ANOVA Value	13.92		
Level of significance	0.0002		

College Algebra	MAT 150 (5 credits)	MAT 151 (4 credits)	MAT 152 (3 credits)
Average Score	76.30	76.32	71.14
Standard Deviation	14.22	15.24	10.67
Number of students	37	63	58
ANOVA Value	2.53		
Level of significance	0.08		

Question #2	Module	Text Book
Average Score	76.29	74.40
Standard Deviation	10.67	13.31
Number of students	37	121
t score	.79	
Level of significance	.43	

Results indicated that students taking either class for three credits scored significantly lower on the respective common final exam than students taking the same class for either four or five credits. Results indicated no significant differences in final exam scores between those students taking algebra from a textbook vs. a module approach.

Future Recommendations for CGCC

The following non-prioritized list was compiled from faculty, staff and administrative personnel through surveys, workshops, committee meetings and reports of assessment and institutional effectiveness activities.

- Extend the writing competency rubric for use beyond English classes.
- Increase budget support for continued assessment efforts.
- Increase cross-disciplinary assessment training including guest speakers.
- Extend the math common final assessment to courses beyond College Algebra.
- Continue to hold the annual faculty forum on assessment each year.
- Improve the regular collection of documentation of ongoing assessments and results from each division and program.
- Provide for more student representation in the planning of assessment activities.
- Increase inclusion of adjunct faculty in assessment planning and activities.
- Increase offerings of four and five credit algebra classes.
- Increase the awareness among faculty about the role of assessment in effective instruction and train faculty in the means to achieve it.
- Continue to encourage faculty commitment to those assessment efforts that reflect genuine concerns and commitment to skills and behaviors valuable for life-long student learning such as critical thinking and problem solving.
- Continue to encourage a diversity of assessment designs and measures.
- Document each division's mission, vision and goal statements.
- Create a college assessment web page.
- Modify the Chemistry integrated lecture/lab structure to separate the lecture and lab due to the technological problems experienced this year in order to enhance student learning.
- Increase the frequency of exams in Economics to encourage improved study skills for students.
- Train more instructors in the Social and Behavioral Science Division in the use of the rubric scales.
- Use established assessment tools in counseling classes every semester to better address student needs.
- Adapt the established library student survey in order to better determine the research needs of the students.
- Change some fine arts sections to pass/fail grading from the traditional A-F in order to decrease grade inflation and increase transferability.
- Attach page one of the graduation survey to each classroom instructor's evaluation.
- Keep records of and discuss among the aviation faculty the results of the FAA exams.
- Increase the use of pre and post common exams in the Microsoft Office courses.
- Gather and analyze data on the anecdotal evidence surrounding the Pecos vs. Williams Campus differences in student achievement.
- Use the graduation survey as a checkout for graduation instead of mailing it to students at a later date.
- Encourage the use of student exit interviews.
- Modify selected physics courses to an inquiry based method based on the pre and post scores of the Force Concept Inventory, and keep that data in house.

Estrella Mountain Community College

Executive Summary

In the **spring of 1999**, the Student Academic Achievement Committee (SAAC) Steering Team, which consists largely of faculty members, gained an adjunct faculty representative and a student representative. Faculty members of the SAAC Steering Team ("we") presented at EMCC's Student Academic Achievement Plan in a workshop at the April 1999 NCA Conference in Chicago. We also attended the 1999 National Invitational Learning Outcomes and Assessment Workshop in Tempe, Arizona. Additionally, we presented our assessment efforts at The 1999 Summer Assessment Academy, sponsored by The Council of North Central Two-Year Colleges, in Cincinnati, Ohio. To further support assessment awareness on campus, we brought in Diane Ebert-May, Director of the Lyman Briggs School, to deliver a workshop on instructional design for incorporating critical thinking and communication into courses. Both full-time and adjunct faculty attended this workshop. We wrote an article for the Maricopa County Community College District newsletter *Assidere*, entitled "The Student Academic Achievement Plan." Plus, we published and distributed our first assessment newsletter, entitled ExSAACtly, updating and sharing our assessment efforts. Our NCA progress report on assessment was accepted in June 1999. Our first assessment of the abilities of critical thinking and communications was conducted at the academic program level in General Education/Transfer (GeEAT), Developmental Education, and Workforce Development. Workforce Development incorporates Computer Information Systems (CIS), Organizational Leadership, and Total Quality Management.

In the **fall of 1999**, we began a productive partnership with the Office of Student Life, the Office of Planning and Institutional Effectiveness, and the Office of Institutional Advancement to assist in the promotion of assessment on our campus.

In the **spring of 2000**, we increased our student representation on our Student Academic Achievement Committee's Steering Team to include two student representatives. Student Academic Achievement Committee (SAAC) representatives began to work with the Math and Writing Center. This center will help us implement the abilities of critical thinking and communication in the classroom. Additionally, we held in-house workshops, where adjunct and full-time faculty shared and demonstrated ways to implement the abilities in the classroom. To help with the promotion of assessment awareness, we published and distributed the second edition of ExSAACtly! Then we assessed the abilities of critical thinking and communication for the second time in each academic program: General Education/Transfer, Developmental Education, and Workforce Development. The assessment in General Education/Transfer used a cohort of beginning students to try to get baseline data on critical thinking and communication. Our Developmental Education assessment efforts were presented at the 2000 NCA Conference in Chicago, Illinois, and they included a revision of the math portion of the test. Workforce Development assessed certificate completers once again in Total Quality Management and Organizational Leadership. Computer Information Systems, which also falls under Workforce Development, revised the assessment test it created during the fall 1999 semester. Finally, we attended and presented at the NCA Pacific Rim Conference on Assessment held in Hilo, Hawaii in June 2000.

In the **fall of 2000**, we assessed students to get baseline data on their abilities in critical thinking and communication in the General Education/Transfer program. Plus, CIS piloted its assessment test in December 2000.

Highlights of Assessment Efforts

A summary of assessment results for critical thinking and communication

Because EMCC serves a student population of less than 5,000, our assessment cohorts in General Education/Transfer, Developmental Education, and Workforce Development are still rather small in terms of being able to draw substantial conclusions from collected data. The size of cohorts ranges from 150 in General Education/Transfer to less than 25 in Developmental Education. Typically, only about 30% of a cohort actually take the assessment tests. This level of participation makes it more difficult for faculty to draw accurate, meaningful conclusions from data analysis results at this time.

GrEAT

For the spring 1999 assessment, the cohort consisted of students who have completed 15 credit hours and 1 course in each General Education/Transfer distribution area. 105 students were invited, and 45 students took the test. For the spring 2000 assessment, the cohort consisted of students who have taken 0-2 courses at EMCC that meet AGEC requirements. 125 students were invited, and 31 students took the test. This was done in order to establish baseline data. For the fall of 2000, the cohort consisted of students who have taken 0-2 courses at EMCC that meet AGEC requirements. 247 students were invited, and 31 students took the test. This was done in order to establish baseline data.

Developmental Education

For the spring 1999 assessment, the cohort consisted of students who are completing the highest level of Developmental Education classes in both English (ENG071) and Mathematics (MAT 092). 29 students were invited, and 2 students took the test. For the spring 2000 assessment, the cohort consisted of students who are completing the highest level of Developmental Education classes in both English (ENG071) and Mathematics (MAT 092). 47 students were invited, and 12 students took the test.

Workforce Development

The cohort for each assessment team under Workforce Development consists of certificate completers.

- **Computer Information Systems (CIS)**: An EMCC adjunct faculty member created an assessment test for CIS during the fall 1999 semester. During the spring 2000 semester, MCCCD (Maricopa County Community College District) Instructional Designer Maria Harper-Marinick and the Dean of Instruction at EMCC worked with the SAAC Co-chairs and revised the CIS test. This test will be piloted in the fall 2000 semester.

- **Organizational Leadership**: For the spring 1999 assessment, 25 students were invited, and 25 students took the test. For the spring 2000 assessment, 37 students were invited, and 37 students took the test.

- **Total Quality Management**: For the spring 1999 assessment, 45 students were invited, and 45 students took the test. For the spring 2000 assessment, 26 students were invited, and 26 students took the test.

A summary of what we have learned from these efforts

Overall Statement about Data

At the first district-wide faculty forum on assessment, we presented a paper that emphasized the importance of faculty control and use of data. We need to ensure that when the data is presented, it does not point to specific faculty members or affect individual students grades. After all, academic assessment is not intended for evaluation of individual faculty members or students. In order to draw adequate conclusions, we need a larger cohort size for each program being assessed. Through the implementation of our assessment plan, we learned that meaningful data and accurate analysis of results are highly dependent upon various assessment factors. Such factors include size of cohort, willingness of cohort to participate in assessment, reliability and validity of assessment tools, and faculty understanding and ownership of assessment. We need to revisit these factors before attempting to report data analysis or to apply results to the improvement of teaching and learning.

GrEAT

The assessment was received from ETS in the summer of 1999. Preliminary data analysis showed a bell curve similar to the previous year. Full data analysis is being completed by the 1999-2000 GrEAT *and* will be reported in next year's report. The number of test completers is not large enough to be representative of the General Education/Transfer population. Therefore, the data cannot be used to make any major changes in teaching and learning. The team is satisfied that the ETS Tasks is an effective assessment tool for the abilities of critical thinking and communication. It will continue to use this test.

Developmental Education

Students were invited to a pizza lunch to discuss what would motivate them to participate in the testing process. With further discussion, the committee decided first to consult with Bertha Phillips, Student Services Specialist, on how to handle the participation challenge. Bertha offered to devise questions that could be asked of students over the telephone. She happily reported that many students had agreed to participate. However, none of them

showed up for their appointments. This prompted her to write a recommendation for our committee. Bertha's recommendation was that the Developmental Education testing process needs to be incorporated into the classroom during regularly scheduled class or examination times. The number of test completers is not large enough to be representative of the Developmental Education population. Therefore, the data cannot be used to make any major changes in teaching and learning. The team has created a test that effectively assesses the abilities of critical thinking and communication. It will continue to use this test.

Workforce Development

Organizational Leadership and Total Quality Management: The instructors are confident that their respective assessment tests, which they created, for the spring of 1999 and the spring of 2000, effectively assess the abilities of critical thinking and communication. Due to pre- and post-testing, improvement was indicated in all areas assessed in both Organizational Leadership and Total Quality Management. Both will continue to use their respective tests. CIS has created a test that effectively assesses the abilities of critical thinking and communication.

FUTURE RECOMMENDATIONS

SAAC

We (faculty members of the SAAC Steering Team) need to work more closely with the Office of Student Life, the Office of Institutional Effectiveness, and the Office of Institutional Advancement to increase campus-wide awareness of assessment as an integral part of teaching and learning at EMCC. We will also continue to work on assessment efforts with the other community colleges within our district as well as with the District Office to improve teaching and learning. Additionally, we need to consider pre-testing cohort members, which is a challenging process. We may not be able to do this because our cohorts are not stable as a result of our particular student population. Once our cohorts are large enough, and we have figured out some sort of pre-testing measure, then we need to decide what conclusions to draw from our data and how to act upon those conclusions. We also plan to continue our workshops where adjunct faculty and full-time faculty can share strategies for implementing the abilities of critical thinking and communication in the classroom. Additionally, we hope to encourage groups to hold division-specific workshops, sharing strategies for teaching that incorporate the abilities. Finally, we will start the process of deciding what ability to test for in addition to the two we currently assess.

GrEAT

Data results must be linked to the improvement of teaching and learning. The concept of assessing abilities must be integrated into the campus culture. Incentives for student participation should be reviewed to maintain strong student participation. Consideration of the issue of if and how students should be alerted to the assessment process and assessment results reported to students continues to be discussed. GrEAT continues to report that the TASKS reflect the definition of abilities on this campus and recommends that the TASKS remain as the assessment tool.

Developmental Education

The continuous improvement of the testing instrument is a key concern of this team. The Developmental Education assessment team recommends that the issue of student "buy-in" into the assessment process be addressed and studied by the larger committee (SAAC) and that recommendations be made on how to solve this issue.

Workforce Development

Revision and improvement of all assessment instruments within Workforce Development will be an ongoing process. However, no specific recommendations are suggested at this time.

Glendale Community College

Executive Summary

Glendale Community College's college-wide assessment initiative stems from a belief that assessment of student academic achievement has a fundamental role in the improvement of student learning. A sound program of assessment is essential in the verification of an institution's accountability to both its internal and external constituents. This report documents GCC's macro-level or college-wide initiative, that compliments its program level (meso) and class level (micro) assessment efforts.

Of critical importance to any effective assessment program is the need to have clearly stated goals and specific, measurable objectives. Reports from GCC's College Wide Academic Achievement Committee for the years 1998-1999, 1999-2000 and 2000-2001 can be found at www.gc.maricopa.edu/2049/ic/PlanningBudgetingAssessing/SAA/SAA00/9900SAAReport.html. The reports employ an easy to read structure referred to as "the five-column model." The first column in each report contains both GCC'S mission as well as GCC's College Wide Outcomes. The College Wide Outcomes, which mirror MCCD's Governing Board Goals Statement, have been separated into core outcomes and secondary outcomes. The initial stages of GCC's campus wide initiative have focused on assessment of three core outcomes, **writing, critical reading and critical reasoning (includes mathematics)**.

The Cohort

A cursory review of college wide assessment initiatives at other institutions quickly yields one common aspect. The greatest obstacle to obtaining meaningful data is the inability of the institution to guarantee that those responding to the study are representative of the population under study. For any sample to be representative of a large population, it must be selected randomly. In addition, to guarantee that the sample reflects the population within desired probability limits, it must meet certain size restrictions. Rarely, in any assessment program that is voluntary rather than compulsory, are either of these conditions met. At GCC a great deal of time and effort has been expended to insure that the assessment initiative meets both these criteria. Assessment takes place during Spring semester of each academic year and the cohort selected consists of students who have applied for graduation and are graduating with an Associate Degree. The Office of Institutional Effectiveness prepares a list of students meeting these criteria and then conducts a random sampling. Only students chosen in the random sampling are invited to participate in the assessment. After initially falling short in the 1998-1999 assessment pilot, changes in the selection process substantially improved student participation. The 1999-2000 assessment provided results that reflect performance of the GCC cohort population within a margin of error of ± 8%. Due to the cost of the test, the goal of the 1999-2000 assessment had been a result with a margin of error of ± 10%. Additional funding would enable administration of the test to a greater number of students and lower the margin of error to ± 5%.

The Academic Profile

GCC uses quantitative measures to obtain information about student learning. Any measurement of student performance should consistently measure what the faculty has stated its students should know, and it should yield data from which reasonable inferences on student learning can be made. Additionally, to be useful, an assessment tool must meet certain standards for reliability and validity. For these reasons GCC chose to use a nationally normed, standardized test for the initial stages of our college-wide assessment efforts.
In choosing a suitable test, several criteria were used:

- The test must reflect areas of emphasis within the core curriculum.
- The test should provide students with an opportunity to demonstrate skills in problem solving, higher-level thinking and the practical application of knowledge.
- The test should measure the specific learning objectives established by the faculty for general education.

GCC chose The Academic Profile, a test of general academic knowledge and skills produced and scored by the Educational Testing Service (ETS). The test is intended for use by colleges and universities in assessing the outcomes of their general education programs. Questions on the test are from three academic areas, humanities, social sciences and natural sciences, and measure college-level reading, college-level writing, and critical thinking and mathematics skills.

Scores from The Academic Profile are reported in two ways; norm-referenced and as proficiency levels. Norm-referenced scores derive their meaning from comparison to scores from other colleges and universities. Seven norm-referenced scores are reported, college-level reading, college-level writing, critical thinking, mathematics, humanities, social sciences, and natural sciences. Proficiency level scores or criterion-referenced scores unlike norm-referenced scores, have their own meaning. The scores or levels are defined in terms of specific competencies expected of students at each of three levels for: **writing, mathematics, and reading/critical thinking**. The full definition of the skills expected at each level is given at www.gc.maricopa.edu:2049/ic/PlanningBudgetingAssessing/SAA/SAA00/9900/SAAReport.html. The levels are hierarchical. Students who perform at Level 2 have also performed successfully at Level 1.

It is important that any college-wide initiative assess *what students will be able to do as a result of their exposure to an institution* rather than what opportunities or services students are exposed to at the institution. The proficiency level scores do just that. In addition they provide us with a direct measure of core outcomes. Looking to the future, the proficiency level scores may also provide the means by which value-added may be measured, providing a pre-test is added. In summary, the proficiency level scores reported by ETS are the basis of GCC's college-wide assessment initiative and are used to guide continuous improvement efforts and verify our accountability.

Highlights of Assessment Efforts

The results of the 1998-1999 and 1999-2000 academic year assessments are summarized in the college-wide assessment reports found at
www.gc.maricopa.edu:2049/ic/PlanningBudgetingAssessing/SAA/SAA00/9900SAAReport.html
GCC formalized and conducted its pilot assessment during the 1998-1999 academic year. The main objective of the pilot was to successfully administer the test to a selected cohort. Proficiency level scores from this initial assessment are shown in Table 1. The normed, composite score of all students is shown in Table 2, with the scores from comparable institutions shown for reference.

The results of the assessment were excellent. Eighty-one percent of the students scored at level one or higher in all three categories. The composite score was above national norms. However, GCC failed in its attempt to obtain involvement of a statistically significant portion of its cohort. As a result of the pilot assessment in 1998-1999, GCC implemented several changes in the 1999 – 2000 assessment to increase participation.

CORE OUTCOME	ASSOCIATED SCORE FROM ACADEMIC PROFILE	PERFORMANCE LEVEL SCORES NUMBER OF STUDENTS IN COHORT: 41			
		LEVEL 0	LEVEL 1	LEVEL 2	LEVEL 3
Writing	Writing	14%	51%	21%	14%
Reading Critical Reasoning	Reading/Critical Thinking	19%	23%	47%	12%
	Mathematics	16%	40%	21%	23%

***Table 1**. 1998-1999, Proficiency Level Scores from The Academic Profile*

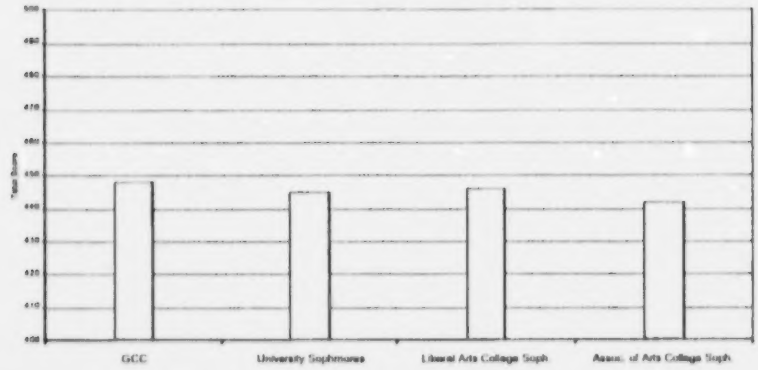


Table 2. *1998-1999, Composite Scores from The Academic Profile*

The main objective of the 1999-2000 assessment was to successfully administer the test to a *statistically significant* number of students from the selected cohort. Proficiency level scores from the assessment are shown in Table 3. The normed, composite score of all students is shown in Table 4, with the scores from comparable institutions again shown for reference.

GCC attained its goal with 102 students from the selected cohort participating in the assessment process. The margin of error produced was ± 8%. Negative consequences also occurred. The proficiency level scores and composite score were lower than the previous year. This may be attributed to the fact that the students recruited to participate in the test were not all motivated to do their best. The number of individual scores that fell below the chance level, approximately thirty-percent, indicates this. Student motivation is also believed to have suffered in part due to the manner in which the test was administered. Planned changes in the 2000 – 2001 assessment will address student motivation.

The results of the 1999-2000 college-wide assessment will be shared with the faculty in conjunction with a series of workshops that are planned for the Spring Semester. The workshops will highlight individual faculty efforts to incorporate teaching of writing, critical reading, and critical reasoning and their assessment in their courses. In addition the results of the 1999-2000 assessment will be used as a benchmark for the 2000-2001 assessment.

CORE OUTCOME	ASSOCIATED SCORE FROM ACADEMIC PROFILE	PERFORMANCE LEVEL SCORES NUMBER OF STUDENTS IN COHORT: 102			
		LEVEL 0	LEVEL 1	LEVEL 2	LEVEL 3
Writing	Writing	55%	27%	9%	9%
Reading	Reading/Critical Thinking	55%	25%	14%	7%
Critical Reasoning					
	Mathematics	57%	25%	10%	8%

Table 3. *1999-2000, Proficiency Level Scores from The Academic Profile*

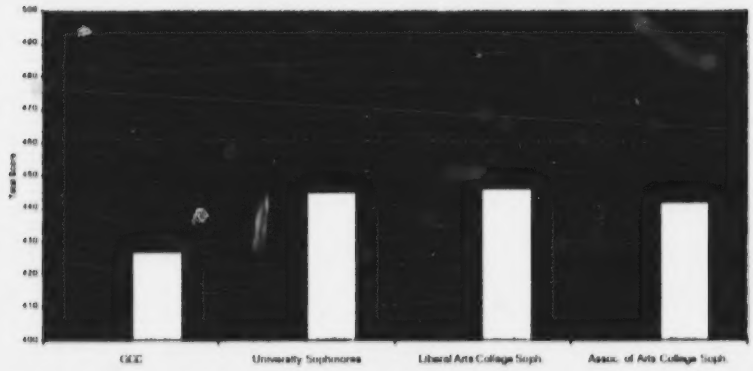


Table 4. *1999-2000, Composite Scores from The Academic Profile*

Future Recommendations

GCC will continue to use the Academic Profile as the main instrument of its college-wide assessment. Each year proficiency level scores will be used to set goals for subsequent graduating classes. The specifics of GCC's 2000-2001 college-wide assessment plans can be found at www.gc.maricopa.edu:2049/ie/PlanningBudgetingAssessing/SAA/SAA00/9900SAAReport.html

Insuring that a statistically significant number of students participate in the assessment was an important first step and will continue to be monitored. GCC additionally faces the complicated task of motivating students to do their best. The College Wide Academic Achievement Committee at GCC is currently reviewing incentives as well the methods used to administer the test in order to increase student motivation.
Long-term plans for the College-Wide Assessment Initiative include:

- Annual assessment of core outcomes.
- Development of assessment mechanisms for secondary outcomes.
- Linking course level and program level assessment to college-wide outcomes and assessment.
- Funding for motivational incentives (e.g., scholarships).

Future Resource requirements

Regardless of the progress made in improving the college-wide assessment process, GCC will eventually need to increase the size of its cohort. This will require an increased commitment from the faculty and staff as well as additional funding for the assessment program at the district level. Conservative estimates for continuing and expanding GCC's current college-wide initiative are:

- Continued administration of the Academic Profile to current cohort with a margin of error of ±10%; $1,800 annually.
- Administration of the Academic Profile to a larger cohort (approximately three times the size of the current cohort) with a margin of error of ±10%; $2,000 annually.
- Administration of the Academic Profile to the current cohort with a margin of error of ±5%; $4,200 annually.
- Administration of a pre-test, an additional $3,600 -$4,000 annually.

GateWay Community College

Executive Summary

GateWay Community College's plan to assess student academic achievement encompasses course, program, and campus-level assessment and evaluation of student learning. The faculty-developed and administratively supported plan has ongoing budgetary support, providing released time for faculty who provide critical leadership and share responsibility for outcomes with the Dean of Instruction through the Student Outcomes Committee.

The student academic achievement plan was formulated to evaluate direct measures of student learning at the course level, proceed to program-level assessment and evaluation and expand to institution-level assessment. The emphasis at the course-level was on providing direct measures of learning beyond the assignment of grades. A move to program-level assessment was facilitated by the fact that GateWay has over eighty occupational programs, many with specialized accreditations which include student outcomes reporting. In addition, with a long history of program review, each instructional program at the College has developed an assessment plan as part of the process and reports assessment results as part of the 5-year program review process and annually in the College's Annual Report.

Over the past two years, the College has focused on expansion of program-level assessment to all degree programs and on institution-level assessment across disciplines in general education for the improvement of student learning.

GateWay's institution-wide general education outcomes are framed by the Governing Board's General Education goal statement. Each of the broad areas of student learning has been written into outcome statements and competencies by content expert faculty and scoring rubrics have been created. A team of Liberal Arts faculty utilize a variety of assessment tools in guiding the institution-level assessment of reading, writing and critical thinking skills of students.

During the 1999-2000 academic year, institution-level assessment focused on the critical reading, critical thinking, and writing skills of degree seeking students and those enrolled in 45+ credit hour certificate programs. GateWay awards degrees and certificates of 45+ hours to approximately 240 students each year.

Highlights of Assessment Efforts

General Education Assessment – Campus-Level

The campus philosophy of general education assessment suggests that the assessment process should be non-intrusive, cross-disciplinary, and provide value to both students and faculty. The first phase of general education assessment, evaluation of reading, writing and critical thinking, requires that students perform program specific research in concert with a writing assignment defined by content faculty. A team of Liberal Arts faculty, with released time for assessment, support content faculty by providing instruction in reading and writing, grading rough drafts of research papers, and helping train faculty to more accurately and consistently evaluate reading, writing and critical thinking skills.

Assessment Measures

Direct measures include an electronic portfolio and an adaptation of a problem-solving activity initially developed by Mesa Community College, modified by GateWay faculty to reflect GateWay's learning outcomes.

Population Selection

Close to 200 second-year, degree-seeking students have been evaluated for critical thinking, reading and writing skills. Students were selected by class cohort, with class participation volunteered by content faculty and stratified on the basis of first year/second year of the program. Three of the College's six academic divisions were represented, Nursing, Health Sciences, and Liberal Arts. These three divisions are where the majority of degree-seeking students are enrolled. It is a goal of the assessment plan to have each division offering degree programs sampled.

Results

In pilot stages of campus-wide assessment, only students in second-year courses were selected and final evaluation generated mean aggregate scores for reading, writing and critical thinking, which were 2.45, 2.61, and 2.61 respectively on a five-point scale. Results indicated that students in the pilot in general scored below average on all three indices. The results initiated ongoing discussions across disciplines about the expectations of second-year community college students in reading, writing, critical thinking, the appropriateness of the rubrics, and budget implications of expanding assessments.

Review of pilot data led to further refinement of campus-wide general education assessment with expansion of evaluation to first-year students while continuing with second-year students and more detailed scoring. In place of aggregate mean scores for reading, writing and critical thinking, each individual outcome is scored to enable faculty to have a better picture of what areas students would benefit from more focused instruction. The refined evaluation procedure indicates specific weakness in the sample population for areas assessed.

Competency	Mean Scores
Critical Reading Comprehends/analysis	3.1
Empathizes with author	3.0
Evaluates argument	2.4
Evaluates evidence	2.4
Compares/Contrasts	2.1
Critical Thinking Clarity and relevance	3.1
Clarity/relevance/logic/depth	2.7
Clarity/relevance/logic depth/accuracy	2.7
Clarity/relevance/logic depth/accuracy/breadth	2.7
Writing Responds to purpose/audience	3.2
Develops content	3.2
Demonstrates organizational skills	3.1
Grammar/Punctuation/Style/Usage	3.2
Eval /interpret /synthesis of sources	2.8
Documentation of works cited	2.6

Overall critical reading means still fall below those for critical thinking and writing. Results indicated students had particular difficulty in their ability to compare and contrast written arguments when reading critically. Students fared slightly better in their ability to think critically. Writing skills artifacts clustered more closely around the mean than did their critical reading or critical thinking skills. Students who had problems with writing generally scored low due to lack of correct documentation of works cited, and a lack of accuracy in synthesizing complex sources. The statistical technique ANOVA revealed no significant differences between means of writing, critical thinking and critical reading scores.

The results indicate the need for increased emphasis in evaluation and analysis and compare/contrast in reading courses, consistent emphasis in critical thinking across disciplines, and on documentation and synthesis of sources in research writing. These results have been shared across disciplines and have been a focus of division discussions particularly in Liberal Arts.

Program-Level Assessment

In addition to campus-wide assessment, the following table provides an overview of some of the results of a variety of program-level assessments.

Division/Program	Direct Measure	Outcome	Action
Business & Information Technologies			
• Court Reporting	Speed/competency measure	Over 70% of students successfully completed speed levels	New courses added to program to provide practice and dictionary building
Health Sciences			
• Health Unit Coordinator	Pre- and post-testing	23% - 25% increase in scores	Micro-nursing unit has been developed to facilitate role playing and interaction
• Respiratory Care	National credential exams National therapist assessment exam	78% pass technician level Self-assessment exams indicated need for improvements in decision making	Curriculum will be changed to reflect emphasis on decision making. Faculty will attend Critical Thinking seminars
• Nuclear Medicine Technology	National credential exam	89% pass rate, strengths in clinical studies, instrumentation	State-of-the-art labs now available for training
• Medical Radiography	National licensure exam Clinical performance	98% average last 5 years	Continue monitoring and reviewing test content to determine possible curriculum changes
Industrial Technology			
• Heating, Ventilating and Air Conditioning	Certification exam	Identification of areas of weakness including EPA standards and recovery competencies	Curriculum revisions including EPA standards implemented in the lab, student demonstration of recovery competencies in select HVA courses
Nursing			
• LPN-AAS	NCLEX-RN licensure exam Pre- and post-testing Clinical competency evaluations Common finals in all required courses with same prefixes Patient Care Plans	92% pass rate 60% pre-test average, 70-75% post-test average Gen. Ed. Assessment revealed need for improvements in critical thinking, reading, writing	Data found to be predictor of success, used to identify students with low probability of success for early referral to Learning Center to develop study skills Critical thinking resource materials for teaching critical thinking skills being reviewed
• Practical Nursing	NCLEX-RN licensure exam Pre- and post-testing Clinical competency evaluations Patient Care Plans	87% pass rate 56% pre-test average, 66% post-test average	Early intervention from pre-test data used to identify students with low probability of success

Future Recommendations

The College has progressed well from course-level to campus-wide assessment. However, the current plan calls for a general education assessment program which requires an intense amount of work by Liberal Arts and content expert faculty. In order to expand the general education assessment to other skills and competencies, the latest iteration of the student academic achievement plan – currently being drafted - calls for a nearly invisible (to faculty and students) data collection process by which student artifacts related to the specific outcomes are gathered on an annual basis and scored utilizing faculty-developed rubrics.

The artifacts would be collected from course and program assignments already incorporated into the curriculum, negating the inherent biases in asking for student/faculty volunteers for assessment, saving valuable classroom time, and facilitating assessment of a broad range of competencies.

In addition, continued revisions of the reading, writing and critical thinking tool are underway as faculty have suggested that some of the questions may not accurately reflect the competencies scored thus artificially deflating the mean scores. This revision is currently underway and the College plans to continue the assessment of critical thinking, reading, and writing while expanding to other competencies.

Finally, the College is in the process of refining the student academic achievement plan to better encompass future planning and indices. To this point GateWay has focused on data collection and implementation of strategies based on results for the improvement of teaching and learning, and there is a need to focus on further developing the specifics of a five-year plan for the assessment of general education.

Mesa Community College

Executive Summary

Skills / Abilities Assessed

Mesa Community College has designed and implemented a comprehensive program to assess student learning outcomes in general education. Through a faculty-owned process, and with significant administrative support, the following seven general education learning outcome areas have been defined:

- Written and oral communication
- Problem solving/critical thinking
- Scientific inquiry
- Numeracy
- Information literacy
- Arts and humanities
- Cultural diversity

Summary of Assessment Efforts/Methods: AY1999-2000

The assessment program is directed by a committee of the MCC Faculty Senate, the Student Outcomes Committee (SOC). Within each of the outcome areas, specific learning outcome statements have been written by interdisciplinary teams of faculty (called clusters). Once the outcomes are defined, cluster members then determine whether there is an existing published measurement tool to assess the outcomes or whether a faculty-developed measure needs to be designed. The majority of the clusters have designed their own assessment measures that directly measure the desired learning outcomes. The problem solving/critical thinking cluster selected a norm-referenced standardized measure of critical thinking.

A cross-sectional research design is used for the assessment program. Students who have completed zero to nine hours are compared to students who have completed at least 30 hours of their general education requirements. Criteria for selecting cohorts were established and refined during two pilot years, AY1996-97 and AY1997-98. Data are collected each spring during a designated Assessment Week, the most recent of which was held the last week of March 2000. Two cohorts of students, a "Pre-group" and a "Post-group," were selected and recruited to participate through letters mailed home. The Pre-group consisted of students enrolled during Spring semester who claimed an intent to transfer or earn an Associate of Arts degree and who had completed zero to nine hours of general education in the core and distributed areas. The Post-group consisted of students enrolled during Spring semester who had completed 30 or more hours of general education in the core and distributed areas.

Students had the option to participate in the testing either during a regularly scheduled class or on their own time. Testing sessions began every two hours from 8 a.m. to 8 p.m. for two consecutive days. If students participated during a regularly scheduled class, they were excused for official college business and were not penalized for missing class. Participating students' names were entered into several drawings for cash awards totaling $1700. Testing was held in the college library, outside of regular classrooms. Faculty volunteered to proctor the assessment sessions; they received training materials and instructions for administering the assessments prior to the testing period. Students were randomly assigned to participate in one of the several assessment measures being administered. They received standardized instructions from the proctors for completing the assessments.

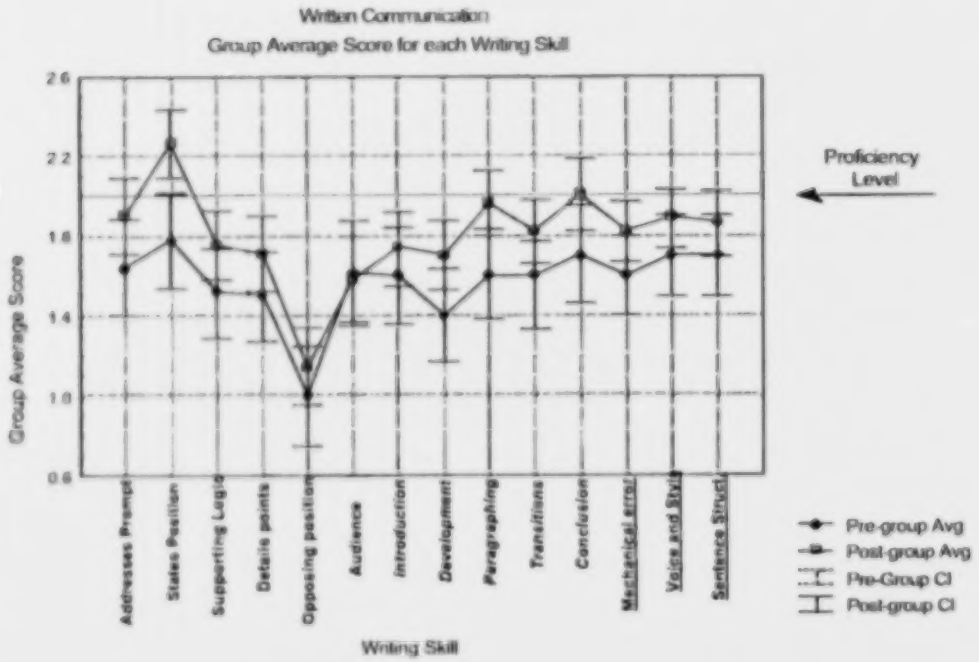
Highlights of Assessment Efforts

Data analyses on the assessment results were conducted by staff in the MCC Office of Research and Planning, using the statistical analysis most appropriate for each assessment. This report describes results for two of the outcome measures administered in Spring 2000: written communication and problem solving/critical thinking.

Written Communication

For the written communication assessment, students were given 90 minutes to write a "well-developed multi-paragraph essay that argues for your position on this issue," in response to a writing prompt. Each essay was scored by two English faculty members using specific scoring criteria. Student identification was hidden so that the essays were "blind scored." Evaluation items included 14 writing skills and were rated on a scale of zero through three; a score of two was designated as proficient. Results overall and for statement of position, logical development, paragraphing skills, transitions and orienting statements, and conclusions, were all rated significantly higher for the Post-group. The results are illustrated in the graph in Figure 1.

Figure 1



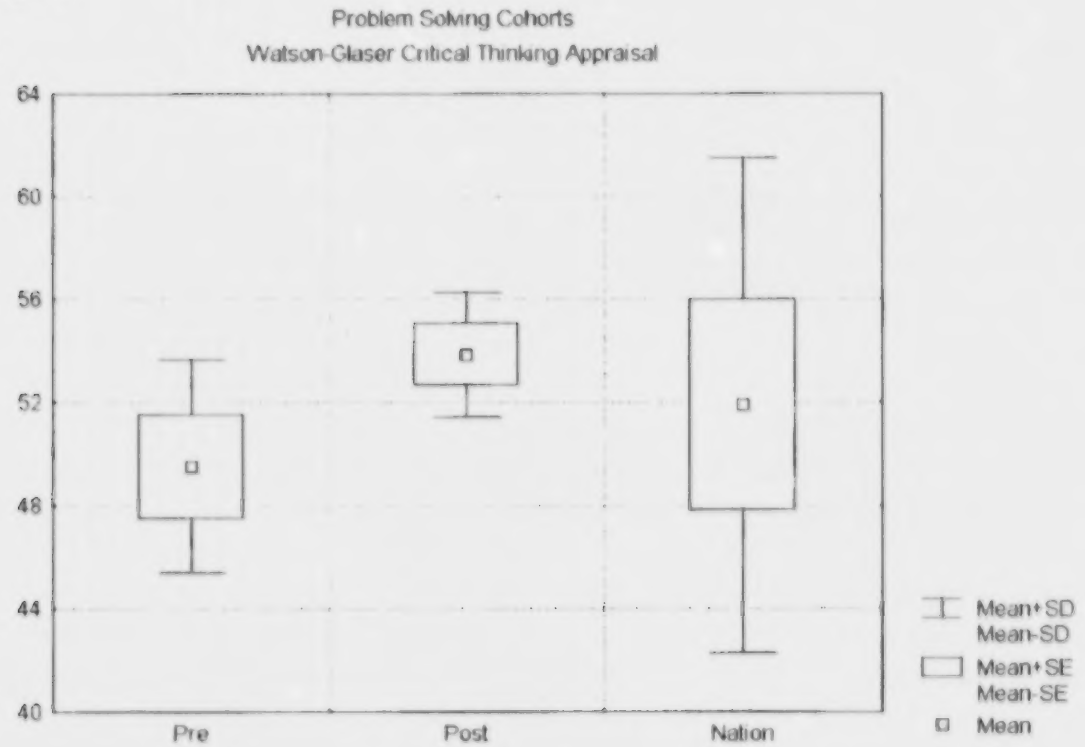
Problem Solving/Critical Thinking

Problem solving/critical thinking was assessed using a standardized measure, the *Watson-Glaser Critical Thinking Appraisal*. This instrument measures critical thinking in five areas: Inference, Recognition of Assumptions, Deduction, Interpretation, Evaluation of Arguments.

Results from the assessment showed that the Post-group average is higher than the Pre-group average, however it was not statistically significant (p=.056). When analyzing by sub-scale, the Post-group average scores were significantly higher than the Pre-group for the Interpretation and Evaluation of Argument sub-scales.

The National mean raw score is 51.9 for students in junior and community colleges. When compared to national percentiles, the Pre-group falls in the 40th percentile and the Post-group is near the 60th percentile. This relationship of the scores of MCC Pre-group and Post-group students and the scores of the national comparison group is illustrated in Figure 2.

Figure 2



Future Recommendations

Based on the findings from Assessment Week 2000, several activities were initiated by the MCC Student Outcomes Committee (SOC) to improve both the assessment process and the integration of assessment results into college-wide planning. The first is the proposal from the Student Outcomes Committee to the Faculty Senate to ensure increased student participation in the assessment program. The second is the incorporation of student outcomes assessment results into the departmental planning process.

Faculty and administration have made a strong commitment to make any necessary changes to the assessment process that will ensure a satisfactory level of student participation. During Fall 2000, the Student Outcomes Committee developed a recommendation for improving student participation that represents a significant departure from the testing procedures used in previous years. The recommendation, that students be assessed within intact classes rather than outside class time, was taken to the Faculty Senate where it was approved unanimously at a regular meeting in October 2000.

The second notable development in the assessment program is the incorporation of assessment results into the existing process for departmental planning. Each fall, department chairs receive a planning packet containing instructions for departmental planning. Through the academic planning process, departments generate new departmental initiatives linked to the college strategic plan. They also identify needs related to those initiatives. This process has been in place for about five years, and each year it is refined. In Fall 2000, a summary of results from the Spring 2000 student outcomes assessments was included with the planning materials. Departments were encouraged to review the results and to determine if they contained any implications for new departmental initiatives. In addition, a representative from the SOC presented the results to each department during a departmental meeting. Feedback from these activities was provided back to the Student Outcomes Committee.

The faculty and administration have been steadfast in preserving the successful aspects of MCC's assessment program, particularly in regard to the cornerstone of the program – *i.e.*, adherence to good assessment practice. The assessment program is based upon the basic tenet that assessment is a tool to continuous improvement. The process promotes assessment as an integral part of planning and instruction and has a cross-curricular and college-wide mission. The ultimate goal is to embed assessment into the college culture and use its results to improve student learning.

Phoenix College

Executive Summary

Impetus Of Assessment

At PC, we are involved in the assessment of learner outcomes in order to determine the effectiveness of our instruction and our programs. We have been guided and directed in this effort by NCA and by our own Governing Board. This assessment effort is faculty-driven with strong support from Administration. Indeed, it is a firm collaboration with buy-in by both groups.

Administration And Faculty Collaboration

The Administration has provided funding for faculty to attend assessment-related conferences and has provided reassigned time to several key faculty to be involved as outcome committee chairs on an on-going basis. Along with a faculty member who has been designated as Assessment Coordinator, the Dean of Instruction co-chairs the Assessment Steering Team, which meets weekly to drive these efforts on campus, and also meets with the General Assessment Committee twice per month. The President also gives strong support for assessment by making it a standing item on the PC Planning Council agenda and by communicating its importance to faculty in meetings and workshops.

Structure

The driving force behind assessment efforts at PC is provided by the **Assessment Steering Team**, which is co-chaired by the Dean of Instruction and the Assessment Coordinator (faculty). This team also includes the Director of R&D and faculty from various academic and occupational departments. This team meets weekly.

The **General Assessment Committee** is made up of faculty from various academic and occupational departments, as well as the Dean of Instruction and the Director of R&D. This committee meets twice monthly in an advisory role to the Steering Team and to discuss assessment related matters and give approval of recommendations and documents presented by the Steering Team.

Department Liaisons (a faculty member selected by each department chair) provide a communication link regarding assessment between outcome committee activities and the academic/occupational departments.

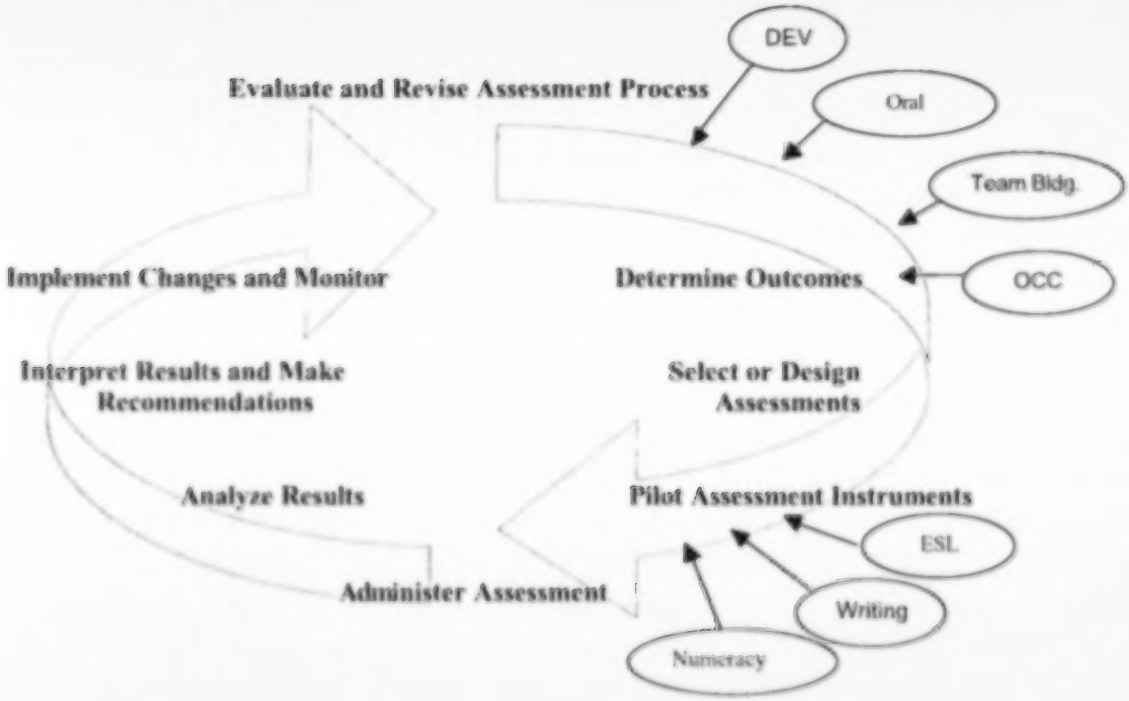
Outcome Committees are chaired by faculty who are selected by the Dean of Instruction and are made up of academic and occupational faculty from various departments. These committees establish outcome statements and select measurements for assessment. They also conduct pilot activities to determine the effectiveness of the assessment instruments and then move into the implementation phase of these activities. Outcome committees at PC are: Numeracy, Writing, Occupational, ESL, Developmental Education, Oral Communication, and Team-Building.

Where We Are In The Assessment Cycle

We graphically represent where we are in the assessment cycle with each identified student outcome. Approximately 1½ years ago, we started with **Evaluate and Revise the Assessment Process.** We are proud to report that we have moved forward in the assessment cycle in several outcome areas over the 1½ years, and we expect to continue to move forward. The chart below depicts where we are on each of the outcome areas as of October 2000.

We have completed a pilot of the Numeracy and Writing instruments (rubrics) in Spring 2000. The ESL Committee has completed outcome statements and developed measures which they will pilot this semester. The Occupational Committee has developed an outcomes statement and a matrix for occupational indicators, this group will be providing data on many of their programs by the end of this school year. We will be working with the Developmental Committee, which will begin to identify outcome statements this year. Furthermore, two new committees are forming this semester and will begin developing outcome statements for Team-Building and Oral Communications. Their goal is to pilot the measures in early spring 2001.

Phoenix College Assessment Cycle



Spring 2000 Pilots

As noted above, we piloted measures for two outcome areas, Numeracy and Writing, in Spring 2000. Approximately 15 faculty from across the disciplines met to receive training on applying a rubric to assess Numeracy skills exhibited in student work samples. Math faculty served as expert resource persons. We consider that any general education outcome should be a campus-wide responsibility, and not the sole burden of one department. Thus we intentionally requested and obtained student work samples from non-Math courses and across disciplines. Faculty from many disciplines served as raters. They evaluated 82 samples, with nearly 70% agreement on their ratings. Since this was a pilot of the measures, we placed greater emphasis on how we obtained the data. These data provided a very preliminary sense of the range of numeracy skills that might be exhibited by students at a given time. Some key issues that faculty will address before this semester's Assessment Day are to what extent the Numeracy rubric outcomes are sequential, whether outcomes must be shown explicitly or inferred, and what the criteria are for samples of student work.

We applied the same philosophy to our Writing assessment pilot. We consider writing to be a campus-wide goal, and not the sole responsibility of the English Department. Therefore, we collected writing samples from non-English classes and across disciplines. English faculty served as resource members and trainers for the rating session. Twenty faculty from across the campus served as raters of 83 student-writing samples. Since this was a pilot of the measures, these data provided at best, a preliminary sense of the range of writing skill levels that might be exhibited by students at a given time. The average mean score was 2.36 with a standard deviation of 0.88. The raters found it difficult to differentiate between content, structure and mechanics and their relative contribution to the scoring of the sample. The percentage of agreement on ratings was moderate. Some key issues that faculty will address before the next assessment session are clarifying and understanding how to apply the rubric and components, identifying the parameters for the writing samples, and focusing on one type of writing assignment at a time before going on to another type of assignment. The committee has revised the writing rubric for our next assessment session.

There were a number of operational issues, including having enough assistants to support faculty committees as they rated and recorded the student work samples, and to assist the Director of R&D. The Chairs for Writing and Numeracy and the Director of R&D plan to address these operational issues in November, prior to Assessment Day.

Plans For Future Improvement

At Phoenix College the overarching goal in assessment is to determine the effectiveness of our instruction. We will do this by building on current interest demonstrated by faculty, administration and support staff and by maintaining a high presence of activities, which expand the involvement of participants campus-wide.

Our methodical, practical approach to assessment will be continued through the efforts of many individuals across disciplines to move through the assessment cycle previously described. Our desire is to determine outcomes and measurements in selected areas and move from the pilot stage to the implementation stage, in order to secure data that will help us shape curriculum and influence campus planning and budgeting. We have also developed an assessment plan, which fits our situation at PC. Using it as a guide, we will continue to make progress in specific outcomes.

We expect to be beyond the pilot stage and, be at least in the first year of administering assessments for all of the identified outcomes areas by the end of 2002-03. We expect to determine outcome statements, select or design assessments and pilot the assessment instruments for several new areas, Reading, Critical Thinking (Problem-Solving) and possibly Information and Computer Literacy by the end of 2002-03 as well. We also expect that by that time both Numeracy and Writing outcomes assessments will be in the early stages of integration across the curriculum, where appropriate. The interest in assessment seems to be increasing. For example, some faculty who have not participated in assessment activities have begun to inquire about the Numeracy and Writing rubrics and whether they can get copies of these tools as well as ask whether they can send in Numeracy or Writing work samples from the students.

Future Activities

Assessment Day: PC will hold an Assessment Day on December 1, 2000 with outcome committees taking part in various activities. The President and Dean of Instruction will address the faculty to give their support and clarify the charge to the outcome committees. For the second time, the **Writing** and **Numeracy** committees will evaluate student samples being collected in an attempt to further refine the outcome statements and rubrics developed. The newly formed **Oral Communication** and **Team-Building** committees will discuss the development of outcome statements relating to their specific areas. The **Occupational** committee will assist in the other outcome areas on Assessment Day, and continue their work of reviewing measures for their outcome statement next semester. The **ESL** committee will train faculty raters in using rubrics with an evaluation of student samples to come a few days later. We anticipate residential and adjunct faculty will participate in Assessment Day, along with some student representatives.

Faculty Involvement: We have learned that maximum involvement and buy-in by faculty across disciplines are essential to a successful assessment effort. With the strong, consistent support of administration, we will continue to explore ways to bring more faculty into the process. This effort will be expanded to include adjunct faculty from across the disciplines.

The Dean of Instruction and faculty from the assessment committee will continue to give regular presentations and training to new faculty in their orientation sessions.

Faculty liaisons will be briefed on our progress in the assessment process and will be trained in the NCA levels of effectiveness. They will, in turn, pass this information along to their respective departments and elicit input and involvement from individual faculty members.

We will expand the number of faculty involved in assessment by inviting selected faculty to attend assessment conferences. This effort will broaden the base of knowledgeable faculty in this area.

Paradise Valley Community College

Executive Summary

- The Student Academic Achievement Assessment Committee (SAAAC) collects quantitative and qualitative measures relating to the various outcomes of Student Progress, Career Preparation, Transfer Preparation, Developmental Education, Community Development, and Customized Education through the Office of Institutional Planning, Research, and Assessment (IPRA).

- The SAAAC develops assessment strategies, selects programs and courses to be assessed, and appoints Assessment Teams. Currently the SAAAC is piloting the methodology of Portfolio Assessment of General Education, focusing on Issue Resolution (problem solving) in three general skill sets (Language Manipulation, Data and Numeracy Manipulation, and Technology Manipulation and Information Access).

- The Office of Institutional Planning, Research, and Assessment (IPRA) collects, makes copies, and submits student works (examples) to each Assessment Team:
  - Team 1: Language Manipulation
  - Team 2: Data and Numeracy Manipulation
  - Team 3: Technology Manipulation and Information Access

- The Assessment Teams evaluate student works using holistic scoring criteria (rubrics). The 1999-2000 Assessment Teams did not, however, consist of the same SAAAC members that created the rubrics, measures, and collection process. The initial members did not set clear guidelines for the use of these rubrics.

- The Office of Institutional Planning, Research, and Assessment (IPRA) compiles Teams' results and reports and submits completed report to SAAAC.

- The SAAAC reports results to Dean of Instruction, Divisions/Departments, and Strategic Planning Council for Improvement of Curriculum and Budget Allocation.

- The Dean of Instruction and Division/Department Chairs act on assessment results with faculty (and District Instructional Council, if necessary).

- The Strategic Planning Council (SPC) uses SAAAC Report and Annual Institutional Effectiveness (IE) Report to assist in developing strategic issues, and SPC Budget Committee uses results to help determine resource allocation.

Highlights of Assessment Efforts

Language Manipulation Results

The Language Manipulation Team scored a total of 20 student papers using a three-point scale writing rubric. The scoring team decided to implement a nine-point scale by adding a plus or minus to each rating. The committee felt that the compressed scale didn't allow for real differences of quality that might exist between two samples that might both be scored, for example, "Adequate 2". The results are summarized in the following table.

Language Manipulation Assignments						
Score	3+	3	3-	2+	2	2-
Number of assignments	0	2	2	6	3	2
Percent of Assignments	0.0%	10.0%	10.0%	30.0%	15.0%	10.0%

Score	1+	1	1-	**Total**
Number of assignments	5	0	0	20
Percent of Assignments	25.0%	0.0%	0.0%	100.0%

If the data are collapsed to the original three-point scale, we get the following.

Language Manipulation Assignments				
Score	3	2	1	**Total**
Number of assignments	4	11	5	20
Percent of Assignments	20.0%	55.0%	25.0%	100.0%

The standards outlined in the assessment call for 30% of students to earn a score of 3 and an additional 40% of students to earn a score of 2. Although we fell short of the number of students earning a 3, we met the standard of students earning 2 or better.

The scoring subcommittee submitted a report to the SAAAC. After discussion, we decided that the most important result was not the data or performance of the students, but rather the things we learned about the process. The subcommittee reported several concerns about the validity of the data and reliability of the process:

- A three point scale does not allow for real qualitative distinctions between papers. A five to seven point scale would be more appropriate.
- There was an apparent lack of uniformity of purpose and requirements for the papers collected. Some were rough drafts, some were rigorous research papers, and some were informal personal narratives. Samples should reflect assignments for which the requirements are as similar as possible.
- The rubric itself should be revised. Certain criteria are unclear and open to personal interpretation. For example, what does "support" of a thesis entail?

Data and Numeracy Results

The Data and Numeracy Team scored a total of 25 papers. The rubric used consists of four subcategories: Identify Relevant Data, Select or Develop Models Appropriate to the Problem, Obtain and Describe Results, and Draw Inferences from Data. A student is given a score from 0 to 5 depending upon how many subcategories are demonstrated. A 5 is only achieved if all four outcomes are demonstrated in more than one way. The results are summarized in the following table.

Data and Numeracy Manipulation Assignments							
Score	5	4	3	2	1	0	**Total**
Number of assignments	0	2	6	7	10	0	25
Percent of Assignments	0.0%	8.0%	24.0%	28.0%	40.0%	0.0%	100.0%

The standards outlined in the assessment call for 70% of students to achieve a score of 4 or more and 90% of students to achieve a score of 3 or more. Clearly, the data collected does not meet these standards. We believe that this is a result of deficiencies in the process and not an indictment of our students or their data and numeracy manipulation ability. Specific concerns about the process are outlined below:

- The scoring subcommittee found it very difficult to score the majority of papers that were submitted. Several papers were scientific in nature, but did not ask or require the student to demonstrate the desired outcomes. These students were not then given credit for these outcomes. The committee felt that the students demonstrated good mathematical skills, but could not achieve high scores using this rubric.
- The committee recommends that the outcomes be clearly explained to the instructors and that greater care be taken to collect only those works in which a student has a chance to express the desired outcomes. It may be necessary to produce several rubrics for specific classes as opposed to a single "one size fits all" rubric.
- Scorers need additional training and practice to sort out reliability and consistency issues. Should students be given benefit of the doubt? One scorer consistently scored the papers about 1 point higher in general because of this.
- The rubric needs to be clarified. In particular, in order to get a score of 5 is it necessary that a student demonstrate more than one subpoint in all four categories? Is three categories sufficient?
- A copy of the problem set or assignment needs to be included so that scorers can interpret answers in context.

Future Recommendations

The Student Academic Achievement Assessment Committee (SAAAC) discussed the reports from each subcommittee and decided that a lot of work needs to be done to revise the process. The raw data collected this year are not indicative of our students' academic achievement and, therefore, should not be used for budget and strategic planning decisions.

The SAAAC continues to discuss the assessment process. The following recommendations were made to improve this process:

- Specific courses and specific sections should be identified prior to the beginning of the semester for collection of student samples. The involved instructors should be made aware at the very beginning of the semester of the intent to collect samples from some of their students.
- In order to ensure that students' samples across courses and different instructors are comparable, parameters need to be established and communicated to the instructors.
- The samples must be free of instructor grades and comments. The samples should be photocopied, without the student's name attached, prior to the instructor's evaluation. The samples should be clearly labeled by the Office of Institutional Planning, Research, and Assessment (IPRA).
- The samples should be accompanied by the problem set or actual assignment statement, thus allowing the scoring committee to decide if the sample indeed fits within the pre-established parameters.
- The samples should be collected from work that has occurred during the latter half or final quarter of the semester so that the work suggests outcomes from the course.
- Samples should be collected from the courses that are among the top General Education FTSE generators.
- Additional outcomes, such as Critical Thinking, should be addressed.
- The rubrics should be analyzed and improved to ensure that they are appropriate for our students.
- Future scoring teams should evaluate more than four papers to establish inter-rater reliability.
- Scoring subcommittees should have a staggered membership period, so that from year to year there are always several experienced raters who can assist the newcomers.
- For some samples, one or two raters suspected plagiarism. A protocol needs to account for such possibilities – whether to throw out the sample as unreliable, or to consider the scorer's hunch as an overall factor in the sample's quality.

Rio Salado College

Executive Summary

During the 1999-2000 academic year at Rio Salado College, competency assessments were administered to students in order to measure their skill levels in important subject areas. Data were collected for seven competencies: reading, writing, problem solving, humanities, speaking and listening, critical thinking, and computer literacy. Annual averages were computed using the scores from all students who completed an assessment during the academic year. Other assessments were used as multiple measures to allow the study of student skills from several perspectives on the same or similar skills. For instance, the Collegiate Assessment of Academic Proficiency (CAAP) was used to assess reading, writing, math, critical thinking, and scientific reasoning. The results of the above-mentioned assessments, with other (multiple) measures, offer valuable insights into student learning at Rio Salado.

Highlights from 1999-2000

Rio Salado general education and dental hygiene program highlights are as follows:

- Students scored within the acceptable range of college-level performance on the reading, problem solving, humanities, and speaking and listening assessments.
- Students scored within the acceptable range of college-level performance on the writing assessment; however, the scores were congregated at the low end of that range. Twenty percent of our students did not demonstrate college level writing on the assessments.
- The CAAP was administered to 191 Rio Salado students as a multiple measure. Rio Salado students had a higher mean than the national two-year public college mean on all sections of the test. The highest percentile score for all CAAP students was on the math section; Rio Salado students were in the 63rd percentile (mean=57.81, N=191) when compared with students nationwide. Dual enrollment students scored in the 93rd percentile in math (mean=62.76, N=50).

Therefore, in 1999-2000, Rio Salado general education students demonstrated college-level skills on five of seven general education competencies. Students performed at a slightly higher level than comparable students nationwide on the CAAP. Although assessment results are not always conclusive, the use of multiple competency assessments make it possible to identify both strengths and potential problem areas for Rio Salado students. Comparison with data from the previous academic year, 1998-1999, indicates the following in terms of the seven competency skills:

- Student scores for reading continue to indicate demonstration of college-level skills, and speaking and listening skills are being demonstrated at slightly higher levels than last year.
- Writing and humanities scores demonstrate students are continuing to perform at the college level, although the means fall closer to the low end of that category when compared to the previous year.

An assessment system is also in place for Rio Salado applied programs. The dental hygiene program is representative of the success of applied programs at Rio Salado. The program was developed at the request of, and in partnership with, the Arizona Dental Association. A full program evaluation is currently underway for the dental hygiene program in anticipation of the upcoming accreditation processes (American Dental Association and North Central Association).

- During 1999-2000, 33 (92%) of the 36 starting students completed the program. Of these 33 students, 100% passed all final exams, regional licensing exams, national licensing exams, were awarded degrees from Rio Salado College, and were employed within the dental hygiene industry.

Description of the Assessment Process

The assessment process at Rio Salado consists of several assessment levels. The program-level competencies assess students in the general education program as a whole. Discipline-level assessments consist of several types of assessment approaches: course-embedded assessments, common finals, or pre- and post-testing. The majority of departments use at least one of the three methods. Rio Salado is proud of the fact that all full-time faculty are actively involved in the assessment process. Numerous part-time faculty are also involved in the assessment process.

The faculty developed assessments were scored using a 4-point scale defined as: 1 = unacceptable at the college level, 2 = minimally acceptable, 3 = expected at the college level, and 4 = superior. The mean scores are used to determine if students are performing at an acceptable college level on the assessments (college level [3.00] was defined operationally as 2.60-3.40). Assessments were administered in reading, writing, critical thinking, problem solving, humanities, computer literacy, and speaking and listening. In addition, the writing competency was administered as a course-embedded or discipline-level assessment, and the humanities competency was administered as a course-embedded assessment only. The critical thinking assessment was administered only in the fall; the problem-solving and speaking and listening assessments were administered in the spring semester only.

Student scores were also compared across cohorts and general education credits to determine if these variables had an effect on student skill levels.

- Students were placed into one of the following three cohorts: degree-seeking, distance learning, and dual enrollment. Degree-seeking students were defined as those who took courses toward a college degree; distance learning students took courses through the distance learning program; and dual enrollment participants are high school students taking additional classes for college credit.
- Students were also categorized into four groups based on the number of general education credits they had completed at Rio Salado prior to the Fall 1999 semester (0 to 9, 10 to 19, 20 to 29, and 30 and above).
- Analyses of variance (ANOVAs) and t-tests, and Pearson r correlation tests were used to assess any statistically significant differences between the mean scores of the comparison groups listed above.

Program Level Assessment Efforts

Rio Salado is highlighting the results of the general education program reading and writing competencies. A summary of CAAP results is presented in Table 1 below.

Reading Competency

A total of 1685 students completed the reading competency assessment during the 1999-2000 school year. All reading assessments took place at the general education program level. The overall mean score was 2.94. The average score in Fall 1999 was 3.01 (N = 840), while the Spring 2000 average was 2.86 (N = 845). A number of comparisons were made between cohorts and general education levels, both within and across terms. The distance learning (N = 1366) and dual enrollment (N = 282) cohorts both had a mean score of 2.94 for the year. The distance learning cohort scored higher in the fall (3.03, N = 677), while the dual enrollment cohort scored higher in the spring (2.97, N = 120). This suggests that cohort membership may not have a large effect on scores in this case. The degree-seeking cohort was too small (N=37) to be compared with the other cohorts.

Students who had completed 30 or more credits received the highest score in both semesters. The Fall 1999 average was 3.13 (N = 34) and the Spring 2000 was 3.00 (N = 32). In contrast, students who had completed 0-9 credits scored lower than most other groups in both semesters. They received a mean score of 2.98 in Fall 1999 (N = 701) and a mean score of 2.85 in Spring 2000 (N = 666). Although the sample sizes between groups varied greatly, the assessment scores seemed to show some improvement related to the number of credits completed. The CAAP was used as a multiple measure for reading. The mean score on the CAAP reading section was 62.80 (N = 191), which translates into a 61.83 percentile score when compared to community college students nationally. This result augments the committee's perception that Rio Salado students as a whole are capable of reading at the college level.

Writing Competency

A total of 1024 students completed the writing competency assessment during the 1999-2000 year. Program-level writing was assessed in Fall 1999 only. Course-embedded (discipline-level) assessments were administered during both semesters. The mean for course-embedded assessments was 2.60, while the average for program-level assessments was 2.69. The distance learning cohort had the highest annual averages both for course-embedded assessments (2.70, N = 133) and program-level assessments (2.82, N = 42). Dual enrollment was the largest cohort with a total of 728 students. The majority of students who completed the writing competency assessment had completed between 0-9 credits. However, those students who had completed between 20-29 credits received the highest overall mean score (2.81, N = 29). Although they scored higher than

those students who had completed 0-9 credits or 10-19 credits, it is difficult to compare these groups given the disparate sample sizes. Students who had completed 10-19 credits had a higher overall average score (2.71) than those who had completed 0-9 credits (2.60). This suggests that the number of education credits completed may have an effect on student performance. The CAAP was used as a multiple measure for writing. The mean score on the CAAP writing section was 64.09 (N=191), which translates into a 61.71 percentile score when compared to community college students nationally. This result augments the committee's perception that the majority of Rio Salado students (up to 80%) are capable of writing at the college level, although they are at the low end of the acceptable range.

Table 1
Rio Salado College Student Results on the 1999-2000 CAAP

		All Student Cohorts N=191		Dual Enrollment N=50		Distance Learning N=74		Site-Based N=67	
	National Mean+	Rio Mean	Rio Percentile*	Rio Mean	Rio Percentile*	Rio Mean	Rio Percentile*	Rio Mean	Rio Percentile*
Writing	62.6	64.09	61.71	67.18	81.38	65.51	64.39	61.33	44.06
Math	56.20	57.81	63.72	62.76	93.60	56.34	56.41	55.73	49.39
Reading	61.00	62.80	61.83	65.10	74.10	63.10	62.97	60.81	51.63
Critical Thinking	61.10	62.65	61.10	64.88	73.92	62.66	60.64	61.02	52.22
Science Reasoning	58.90	59.57	57.50	62.82	78.39	58.97	53.85	58.90	46.16

+National Mean refers to scores from two-year public colleges
*Rio Salado Percentile on National Scale (two-year public colleges)

Future Recommendations

Interventions for improving student skills
The competency coordinators recommended that writing skills of our students be a college priority across the curriculum in 2000-2001. Although approximately 80% of our students are writing at or near college level, faculty have noticed that they are not necessarily seeing that caliber of writing in their classrooms. Therefore, the initiative will have several goals: a) faculty will state their high expectations of performance by all students, and b) students not writing at the college level will be identified and encouraged to seek assistance to improve their writing skills. In order to facilitate these goals, interactions between faculty and adjunct faculty will emphasize high expectations for writing and the identification of students who need assistance. Further, student access to tutoring will be increased through programs such as the beep-a-tutor service.

Interventions in the assessment process
The improvements to the assessment process itself are as follows:

- The Student Achievement Committee will continue to make improvements to its program-level assessments by adding additional multiple measures where possible to augment its own, primarily faculty developed, instruments. The use of multiple measures is important in the process of program assessment to lend validity to the process as a whole. The committee plan includes increasing the number of students who participate in CAAP testing, making more systematic use of the ASSET-CAAP connections, etc.
- During Spring Semester 2000, the Student Achievement Committee discussed a change in the assessment cycle. Sufficient baseline data for student achievement have been collected during the past two academic years. Therefore, the assessment cycle will now focus on spring semester data collection, summer analysis and intervention designs, and implementation to be introduced during the fall semester. This will enable the competency coordinators to work more closely with other full-time faculty and with adjunct faculty so that the interventions can be more consistently implemented. Further, this will allow more in-depth examination of interesting results in the data through mini-assessments, focus groups, etc.

- Improvements will also include a more systemic stratified random-sampling design for selection of course sections chosen for competency assessment. The sampling method will include 40-50 classes that include all types of students, and/or delivery modalities roughly proportionate to the population found in those groups. Further, within these classes, each student will receive a random assessment. In other words, each student of each assessed course will receive one of the evaluations randomly. We anticipate that this will make our data more representative, increase sample sizes, and make participating in the assessment process more user-friendly for both students and adjunct faculty.
- To enable more targeted interventions at the course level, assessment instruments will continue to be evaluated to make more systematic and efficient use (if possible) of sub-scores to identify and isolate particular weaknesses in assessed skills. The reading assessment is undergoing an item analysis to verify the validity of the instrument and make improvements where necessary.
- In addition, the critical thinking instrument was changed in anticipation of the spring 2001 assessment cycle. The problem solving assessment has been added after a successful pilot in spring 2000. A new assessment, information literacy, will be piloted starting February 2001. The computer literacy assessment is currently under revision based on pilot data from spring and fall 2000.
- All full-time faculty are either continuing or developing discipline- and course-level assessments. This process will continue to provide information for the interventions taking place at the curricular and course level.

Scottsdale Community College

Executive Summary

In 1997 Scottsdale Community College adopted eleven Institutional Outcomes. SCC's assessment efforts over the past two years have focused on assessing Discipline-Specific Knowledge, one of the eleven, with each department conducting its own assessment activities. Most have gathered meaningful assessment data and are in the process of designing and implementing interventions based on their findings.

Departments have also identified additional institutional outcomes that relate to their courses and are devising course-embedded measures for them. The most frequently identified institutional outcome was Critical Thinking.

The Institutional Outcomes Assessment Committee (IOAC) is focusing its current efforts on helping departments devise methods of infusing Critical Thinking activities and assessments into specific courses. Data from these courses will be aggregated to produce a composite of the status of this outcome at Scottsdale Community College. Similarly, the IOAC plans to focus on one or more additional outcomes each year.

Highlights of Assessment Efforts

Campus-Level

To encourage faculty to develop and refine their assessment skills, the college has begun sponsoring annual Assessment Retreats prior to accountability week each January. In January 2000 approximately 40 faculty and administrators attended the first retreat in Wickenburg, where two experts from Alverno College presented principles of designing meaningful assessment.

For 1999-2000 the IOAC continued the emphasis on the Discipline-Specific Knowledge outcome. Each department continued to employ its own assessment methodology. In addition, the IOAC adopted a standardized report format that departments use to summarize their methodology, their interpretation of results, and the interventions they plan to make. Reports are submitted twice per year, with an Interim Report due February 15, and a Year-End Report due on October 1.

Scottsdale Community College continued to publish *The Watercooler*, an assessment newsletter, which is available on the Internet at http://www.sc.maricopa.edu/assessment.

Course-Level

The following excerpts from departmental summaries have been selected as examples of assessment efforts at the course level.

Biology

"The Outcomes Assessment Plan for course-specific outcomes in BIO 182, General Biology (Majors) II was a pilot program to determine if student learning correlated with the five course competencies set by the MCCCD Instructional Council. A pre- and post-test composed of 20 multiple choice questions was used to determine if learning had occurred over the course of the semester. A measurement of reading skills using the Asset Reading Test was used as a predictor and indicator of success in the course. Results of the pre- and post-tests showed about a 15% increase in test scores over the semester. Content questions showed more improvement than critical thinking questions. ASSET reading scores showed that student performance was not dependent on reading skills. However, this is the second half of a two semester course and students with poor reading skills may have already been eliminated."

Chemistry

"We are in the process of evaluating CHM151. The assessment method that we are using for both departmental and institutional outcomes is a standardized final examination written by the American Chemical Society. The exam is taken by thousands of students across the country. The course-specific outcomes we are assessing are the 28 competencies for CHM151 as outlined by the MCCCD."

Nursing

"Two courses were identified, NUR 160 and NUR 180 "Nursing Process & Critical Thinking", to measure critical thinking for all the students who had entered the nursing program. The outcome is measured through teacher made exams and other classroom activities. The final measure that gave both the student and faculty the data related to their application of nursing knowledge through critical thinking questions was the administration of the HESI practical nurse exit exam (May 2000). This exam is a national standardized exam and has predictability for the success rates for the PN licensure exam."

Psychology

"... we first developed a test of critical thinking that could be used to estimate changes in critical-thinking skills over one semester in three sections of PSY 101. The test consisted of short vignettes to which the student had to respond by answering several short-answer questions and several multiple-choice questions. ... We found no average increase in critical-thinking skills over the course of the semester as measured by the two forms of this test.
We have identified several important problems with the test that have made us suspect that the test is not a valid measure of critical thinking.... At this point, we are developing a [new] test [which] will be used in a pre- and posttest design in future semesters."

What Have You Learned?

Probably the most significant lesson that we have learned is that outcomes assessment is time-consuming and is sometimes frustrating but that ultimately it is a worthwhile activity. Some specific comments from the 1999-2000 Year-End Reports:

- English faculty:
  "One significant result is that these conversations result in attempts to coordinate courses within a sequence."
- Drafting faculty:
  "Meaningful assessment must include a student self-assessment component."
  "Meaningful assessment must include multiple measures."
  "Assessing outcomes requires lots and lots of time."
- Computer Information Systems faculty:
  "The outcomes assessment initiative needs to be an integral part of our department's focus. We need to continue to refine the outcomes assessment process by creating better measurement tools."
- Administration of Justice faculty:
  "We learned that outcomes assessment provides a simple and structured way to assess both courses and programs and facilitates periodic reassessment of both which is beneficial to both students and instructors alike."

Experience tells us that students must be motivated to do their best if assessment is to be meaningful, so course-embedded assessment seems logical. Complete faculty acceptance and support will evolve over time.

How Has Instruction Improved?

Faculty reports that assessment undertakings have prompted them to make changes in classroom techniques, to communicate more with students, to initiate conversations among faculty, and to review and update curriculum.

- International Business faculty:
  "I used this information to restructure the team project to make it simpler to understand. Some techniques for presenting certain material have also changed; for example, I have constructed more hands-on exercises for students to understand difficult concepts, such as international organizational structure and foreign exchange."

- Biology faculty:
  "... the biology department feels they have learned from this pilot in terms of the design of the plan. They plan to modify the critical thinking component of the assessment tool to use questions that are more evaluative of the critical thinking process."
  "Since the assessment plan in Biology involved all faculty, we are able to use the experience of the pilot plan as a learning experience for all our faculty."
- Drafting faculty:
  "Completed major restructuring of the assignment structure of DFT classes."
  "Developed a more tightly articulated DFT class sequence."
  "Implemented an instructional focus more directed toward competencies/outcomes."
  "Strengthened instruction/learning in several areas determined to be 'weak.'"
  "Given students a better idea of learning goals."
  "Seen a 'leap' in the quality and quantity of student work."
- Computer Information Systems faculty:
  "First and foremost, the dialogue among the departmental faculty about outcomes assessment and specific classroom learning issues has been very informative."
- Economics faculty:
  "Use lectures less and employ more team based and group based exercises."

Future Recommendations

Since most departments identified Critical Thinking as an important institutional outcome for their courses, the emphasis for 2000-2001 will be on this outcome. This year's assessment retreat will focus on critical thinking and will be facilitated by Dr. Barry Leshowitz of Arizona State University. The goal is to have participants develop a critical thinking lesson-plan during the retreat that they can use in their classes. A follow-up session is planned for Spring 2001. Data from these individual courses will be aggregated to produce a composite of the status of this outcome at Scottsdale Community College.

The Institutional Outcomes Assessment Committee will continue to monitor and ensure that departments expand their assessment activities to include additional courses, and that they identify additional institutional outcomes to be assessed within selected courses.

In addition, the Institutional Outcomes Assessment Committee will continue to evaluate other methods and options for campus-wide assessment of institutional outcomes.

South Mountain Community College

Executive Summary

The SMCC Institutional Effectiveness/Academic Assessment committee was formed to establish a faculty driven assessment process by identifying direct and indirect indicators of student learning. The initial goal of the IE/AA committee was to establish an ongoing dynamic process to evaluate the effectiveness of those parts of the college that enable the students to learn (institutional effectiveness) and a process to evaluate what and how much students have learned (student learning outcomes). Assessment results are utilized to identify what is needed to improve student learning. The results are also linked to institutional planning and budgeting processes. The ongoing goal of the IE/AA Committee is to provide data to the Strategic Planning and Budgeting Committees and aid in decision making.

The SMCC's Academic Assessment Program has routinely collected and examined assessment data to document and improve teaching effectiveness and student learning at the classroom, program, department, and institutional levels. The General Education Program is assessed in critical thinking, scientific inquiry/numeracy, and personal development.

The college has established the fifth week of the fall and spring semesters as "Academic Assessment Week". During this week, instructors administer the critical thinking assessment, scientific inquiry/numeracy test and humanities survey. In addition, student focus sessions are conducted and video taped and all faculty conduct a formative evaluation in each class section. They are given two weeks to report the findings to the IE/AA Committee. Faculty also conduct classroom assessment strategies at the start of the semester, for example, collecting writing samples or administering pre-tests. After post-tests are completed at the end of the semester , they report findings to the IE/AA committee.

Members of the college community make oral presentations of their findings at the spring IE/AA luncheons. Assessment strategies and data collection forms and other documents are shared with the entire college community.

Highlights of Assessment Efforts

Direct Indicators of Student Learning

The IE/AA Committee has worked with faculty to identify strategies to measure the outcomes of the general education component. The decision was made to assess student learning in the realms of critical thinking, numeracy and scientific inquiry. A faculty member chaired an ad hoc committee (consisting of faculty members and the research coordinator) to create an assessment test for critical thinking. The chairperson for the Mathematics and Science Division formed an adhoc committee consisting of faculty from the division to develop an exit test to provide additional evidence of student learning in mathematics and scientific inquiry. The test was piloted during the 1998 spring semester.

After running the pilot through the 1998/99 academic year, a decision was made to administer the critical thinking test and scientific inquiry/numeracy skills exit test to freshman only in fall 1999 and administer it to students who had completed at least 24 general education courses or more at SMCC during the spring semester.

Cohort Group

The IE/AA committee piloted the critical thinking assessment to a random sample group consisting of day, evening, and weekend students. The sample group consisted of twelve percent of the student population of fall 1997 and spring 1998. In addition, the IE/AA Committee administered the pilot of numeracy and scientific inquiry tests to 12% of the graduation class of 1998. The students volunteered to take the test in exchange for free movie passes and to enter a drawing for a $60.00 gift certificate for textbook purchases.

Results

- During the fall 1997 semester, 33% of SMCC students who had successfully completed one or more communication courses demonstrated college-level critical thinking skills.
- During the spring 1998 semester, 30% of the SMCC students who had successfully completed one or more communication courses demonstrated that they acquired college-level critical thinking skills.
- During the spring 1998 semester, 91% of the graduates who took the scientific inquiry/numeracy skills exit test scored 60% or higher.
- During the fall 1997 semester and spring 1998 semester over 95% of the students participating in the student focus sessions revealed they had experienced personal growth as a result of attending the college.

Reliability and Validity

That assessments effectively measure what they purport to measure, and measure it every time, is a concern. The locally developed instruments are reviewed by faculty each year. Many questions are raised regarding the reliability and validity. The decision was made to compensate for concerns regarding the suitability of the new instruments by planning multiple measures of intended educational student outcomes. By doing so, the results from each measure may be compared as an assessment of reliability of judgment and a backup will exist should one means prove totally unsatisfactory in practice.

Program Evaluation

Many questions were raised as a result of the data. One question in particular was what does this mean? After administering the same strategy for the 1998/99 academic year, the decision was made to administer the critical thinking test and scientific inquiry/numeracy skills exit test to freshman only in fall 1999 and administer it to students who had completed at least 24 general education courses or more at SMCC during the spring semester. This way we could compare the two in order to establish a baseline for student learning. Faculty and staff were pleased with the results of the student focus sessions and decided to conduct these sessions each spring instead of each semester.

Highlights of Assessment Efforts

Per Question Analysis for correct answer.

Fall 1999 (Freshman)

Question #1:	Read and calculate bar graph	37%
Question #2:	Read and calculate circle graph/pie chart	63%
Question #3:	Fraction and decimal	56%
Question #4:	Percent and fraction	67%
Question #5:	Metric system conversion	41%
Question #6:	Metric system conversion	26%
Question #7:	Probability (Arrangement)	59%
Question #8:	Probability	63%
Question #9:	Scientific method	74%
Question #10:	Scientific method	89%
Overall average		57.5%

Spring 2000 (Students completing 24 credits or more at SMCC)

Question #1:	Read and calculate bar graph	35%
Question #2:	Read and calculate circle graph/pie chart	70%
Question #3:	Fraction and decimal	60%
Question #4:	Percent and fraction	65%
Question #5:	Metric system conversion	70%
Question #6:	Metric system conversion	55%
Question #7:	Probability (Arrangement)	80%
Question #8:	Probability	70%
Question #9:	Scientific method	75%
Question #10:	Scientific method	75%
Overall average		65.50%

The overall average in comparison clearly states that the students completing 24 or more credit hours are more knowledgeable in the area assessed.

In critical thinking, during the Fall 1999 semester, 38% of SMCC's freshman students who took the critical thinking assessment completed the assessment instrument as instructed.

During the Spring 2000 semester, 54% of SMCC's students who had completed 24 or more general education courses and took the critical thinking assessment at the college completed the test as instructed. Additional assessment data has been collected by the communication departments and the biology department (see attachment).

Future Recommendations

Our assessment program, like most assessment programs, is in its infancy stage. With only having implemented the program for approximately three years, there is so much to learn about assessing students for intended educational outcomes. What we have learned, however, is that our instructional programs are having a positive impact on the lives of our students. We have also learned that faculty play a major role in the selection of the best means of assessment available. They are the key to the development, administration, reporting of results and maintenance of locally developed cognitive end of program examinations. In addition, faculty and administration will ultimately work together to allow the results to drive budgetary decisions and the college's strategic plan.

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